

WHAT IS CLAIMED IS:

1. A solid state image sensor comprising:
light receiving means including a plurality of
light receiving cells arranged in a matrix, each light
receiving cell converting light input into electrical
signals;
reading and storing means including a first memory
for reading bright signals out of light receiving cells
arranged in a row and storing the bright signals for a
horizontal scanning period, a second memory for reading dark
signals out of said light receiving cells arranged in a row
and storing the dark signals for a horizontal scanning
period, and a readout circuit for reading the bright and dark
signals stored in said first and second memories
simultaneously; and
means for removing fixed pattern noises by
processing the simultaneously read out bright and dark
signals.
2. A solid state image sensor according to claim
1, wherein said light receiving means and reading and storing
means are integrally formed in the same semiconductor
substrate.
3. A solid state image sensor according to claim
1, wherein said means for removing the fixed pattern noises
comprises a differential amplifier for deriving a difference
between the bright and dark signals so that the fixed pattern
noise due to the difference in off-set voltage of the light
receiving cells is removed.
4. A solid state image sensor according to claim
1, wherein said dark signals are read out of light receiving
cells arranged in a row immediately after resetting the light

receiving cells simultaneously during a horizontal blanking period.

5. A solid state image sensor according to claim 1, wherein said bright signals are read out of light receiving cells arranged in a row simultaneously during a horizontal blanking period.

6. A solid state image sensor according to claim 1, wherein said reading and storing means comprises:

a third memory for reading bright signals out of light receiving cells arranged in a row and storing the bright signal for the horizontal scanning period;

a fourth memory for reading dark signals out of light receiving cells arranged in a row and storing the dark signal for the horizontal scanning period;

switching means for deriving the bright and dark signals alternately from said first and second memories and the said third and fourth memories in the rhythm of the horizontal scanning period.

7. A solid state image sensor according to claim 6, wherein said bright and dark signals are read out of light receiving cells in a row successively during one horizontal scanning period.

8. A solid state image sensor according to claim 7, wherein said means for removing the fixed pattern noises comprises a differential amplifier for deriving a difference between the bright and dark signals so that the fixed pattern noise due to the difference in off-set voltage of the light receiving cells is removed.

9. A solid state image sensor according to claim 1, wherein said reading and storing means comprises:

a first set of switching transistors, the number of which is equal to that of light receiving cells arranged in a row, each switching transistor having two main electrodes and a control electrode;

a second set of switching transistors, the number of which is equal to that of the light receiving cells arranged in a row, each switching transistor having two main electrodes and a control electrode;

a first store control line commonly connected to the control electrodes of said first set of switching transistors;

a second store control line commonly connected to the control electrodes of said second set of switching transistors;

a plurality of vertical lines each of which has one end connected to signal output terminals of light receiving cells arranged in respective columns and has the other end connected commonly to one main electrodes of the first and second sets of switching transistors;

a first set of memory devices for storing the bright signals read out of light receiving cells arranged in a row, each of which is connected to the other main electrode of each of the first set of switching transistors;

a second set of memory devices for storing the dark signals read out of light receiving cells arranged in a row, each of which is connected to the other main electrode of each of the second set of switching transistors;

a third set of switching transistors each of which has a control electrode, and two main electrodes one of which is connected to a corresponding one of the first memory devices;

a fourth set of switching transistors each of which has a control electrode, and two main electrodes one of which is connected to a corresponding one of the second memory devices;

a bright signal readout means commonly connected to the other main electrode of the third set of switching transistors;

a dark signal readout means commonly connected to the other main electrode of the fourth set of switching transistors;

a horizontal scanning shift register having output terminals which are connected to the control electrode of the third and fourth switching transistors; and

a vertical scanning shift register having output terminals each connected to light receiving cells arranged in a respective row.

10. A solid state image pickup apparatus according to claim 9, wherein said dark signals are read out of light receiving cells arranged in a row immediately after resetting the light receiving cells simultaneously during a horizontal blanking period.

11. A solid state image pickup apparatus according to claim 9, wherein said light signals are read out of light receiving cells arranged in a row simultaneously during a horizontal blanking period.

F502/A10389/rd